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ARIZONA TRANSPORTATION CONTROL PLAN

Phoenix-Tucson Interstate Air Quality Standards

Title 40—Protection of Environment

CHAPTER I—ENVIRONMENTAL PROTECTION AGENCY

SUBCHAPTER C—AIR PROGRAMS

PART 52—APPROVAL AND PROMULGATION OF IMPLEMENTATION PLANS

Arizona Transportation Control Plan

This rulemaking sets forth a transportation control plan for the Phoenix-Tucson Intrastate Air Quality Control Region (the "Region"). A General Preamble was published on November 6, 1973, in the FEDERAL REGISTER (38 FR 30626) and is incorporated herein by reference.

On March 20, 1973, the Administrator, acting in response to a court order, notified the Governor of Arizona that a transportation control plan for the Region should be submitted by April 15, 1973. On April 11, 1973, the State of Arizona submitted a proposed implementation plan control strategy to the Administrator. This plan demonstrated attainment of the oxidant standard by May 31, 1975. However, although several of the strategies included to control carbon monoxide were approvable in concept, they were not set forth in the required regulatory detail. Accordingly, on June 15, 1973, the Administrator disapproved the plan (38 FR 16555, June 22, 1973).

Because the Administrator disapproved the Arizona control strategies for carbon monoxide, the Administrator was required, under section 11(c) of the Clean Air Act, to propose and subsequently promulgate regulations setting forth substitute measures. Regulations for the attainment and maintenance of the national standards for carbon monoxide were proposed by the Administrator in the FEDERAL REGISTER of July 16, 1973 (38 FR 18942). Public hearings were held on the proposed regulations in Tucson on September 10 and 11, 1973, and in Phoenix on September 12 and 13, 1973.

The Governor of Arizona submitted a revised implementation plan control strategy on September 11, 1973. Notice of receipt of the revised Arizona plan was published in the FEDERAL REGISTER on October 26, 1973 (38 FR 29607). This notice was issued to solicit public comment on the plan prior to the Administrator's approval/disapproval decision. The closing date for public comment is November 16, 1973, which is also the deadline established by the Court of Appeals for promulgation of EPA's Arizona transportation control plan. Consequently, today's promulgation cannot be delayed to review public comment received on or near the closing date for comment.

The Administrator has reviewed the revised Arizona plan, supplemental information, and public comment received to date and finds that the inspection/maintenance and retrofit control measures are, for the most part, approvable as specified herein. Therefore, the Administrator has approved these measures with exceptions and conditions. Upon receipt of the remaining public comment, if any, the Administrator will issue an evaluation report of the Arizona plan and, if necessary, amend this approval and promulgation.

AIR POLLUTION IN THE PHOENIX-TUCSON REGION

Natural features. The Phoenix-Tucson Region is composed of the five Arizona counties of Maricopa, Gila, Pinal, Pima, and Santa Cruz. A total of 1,431,954 people reside in this region, 80.8 percent of the total state population. The region encompasses 29,753 square miles, 26.2 percent of the total state area. There are two major urban areas within the region: Metropolitan Phoenix in Maricopa County and metropolitan Tucson in Pima County. These areas contain 87.5 percent of the region's population. Both metropolitan areas are located at the northeast edge of the southwestern desert, which comprises about a third of the state and is typified by low mountain ranges and desert valleys. Phoenix and Tucson are located about 120 miles apart with the elevation of Phoenix being 1117 feet and of Tucson, 2410 feet.

The climate of the two major metropolitan areas is quite similar, although Tucson temperatures are normally somewhat cooler because of its elevation. Tucson also has more rainfall. Both areas have a large number of days with clear skies and an abundance of sunshine. Average wind speeds in Tucson tend to be slightly higher than in Phoenix.

In the southwest desert areas where clear skies predominate, rapid heating of the surface occurs during the daytime. This rapid heating, in turn, produces an unstable atmospheric condition with good dispersion. Clear skies at night allow rapid cooling and lead to the formation of surface-based inversions.

Because of the longer nights and increased cooling, these inversions are stronger and more persistent in the winter than in the summer. National Weather Service records indicate that radiation inversions can be expected on about two-thirds of the winter nights. Low wind speeds appear to occur more frequently during the night, and the combination of surface inversions and light winds produces the stable atmospheric conditions that are conducive to the accumulation of pollutants near the ground.

Maricopa County records indicate that the highest carbon monoxide concentrations occur during the night in the winter months. This coincides with the period of highest frequency of stable radiation inversion conditions. Both the maximum 1-hour concentration and the maximum 8-hour concentration usually occur between 6:00 p.m. and midnight. In addition to the stable atmospheric conditions during these hours, traffic counts, using October as an example, indicate that there is more traffic in the 5-hour period centered around the evening peak hour (4:00 to 5:00 p.m.) than in the similar 5-hour period centered around the morning peak (7:00 to 8:00 a.m.). High carbon monoxide concentrations do occur during the morning traffic peak period; these concentrations, however, are generally short-lived because the atmosphere is rapidly becoming unstable because of daytime heating. Thus, it would appear that high concentrations of carbon monoxide in these area are a function not only of total emissions, but also of the meteorological conditions that exist during the periods of highest emissions.

It should be noted that the dispersive characteristics of unstable midday atmospheric conditions could be used to reduce high evening carbon monoxide concentrations if measures were adopted that caused the evening peak traffic to occur earlier. The shifted emissions would then occur during a period of good dispersion. To help achieve this shift, employers could reschedule the work shift so that quitting time occurs at 3 p.m. Also, work hours staggered toward an earlier quitting time by a significant number of employers would shift the emissions and, in addition, lessen traffic congestion, which is a source of increased emissions due to stop and go operation. Use of daylight savings time during the winter months would effectively shift peak evening traffic 1 hour earlier with respect to the time of the nondispersive nighttime conditions. Such a measure would also result in significant energy savings.

Air quality monitoring in the region by the Maricopa County Health Department has consisted of one station located in Phoenix. At various times the Arizona Division of Air Pollution Control (DAPC) has in addition monitored air quality at different locations throughout the State using mobile equipment. The data from the mobile monitoring equipment cover short periods (24-hour periods to 4-month periods); the station located in central Phoenix has recorded data continuously since 1967. There has been no continuous air quality monitoring in the metropolitan Tucson area until recently when two monitoring sites were activated in a cooperative program between Arizona DAPC and Pima County Health Department. The State is in the process of procuring five additional carbon monoxide monitors for Phoenix. These monitors were funded by EPA and will be operated by the Maricopa County Health Department. Air quality data for 1 year, or at least for the seasonal period when high concentrations would normally be expected to occur, is required for analysis and selection of carbon monoxide control strategies. The only data available of sufficient duration to permit strategy calculations are those from the central Phoenix monitoring station.

The second highest 1-hour and 8-hour carbon monoxide concentration recorded in 1971 in the Phoenix-Tucson AQCR were 43.5 mg/m³ and 29.36 mg/m³. Use of a proportional rollback technique indicates that control measures adequate to ensure attainment of the 8-hour national carbon monoxide standard (10

mg/m³) will also ensure meeting the 1-hour standard (40 mg/m³). Rollback calculations show that a 66 percent reduction from 1971 carbon monoxide emissions is required to meet the national 8-hour standard.

The second highest 1-hour average concentration of photochemical oxidants recorded in the Phoenix-Tucson AQCR for the base year 1971 was 236 μg/m³. Using the relationship between hydrocarbon emissions and ambient photochemical oxidant concentrations as defined in Appendix J, 40 CFR Part 51, a 31 percent reduction from 1971 hydrocarbon emissions is required to meet the national standard of 160 μg/m³.

Information presented in the State Plan and in the EPA Technical Support Document (which is available at the Office of Public Affairs, EPA Region IX, 100 California Street, San Francisco, California 94111, and at the Freedom of Information Center, U.S. Environmental Protection Agency, 401 M Street, SW., Washington, D.C. 20460) shows that the anticipated decrease in motor vehicle hydrocarbon emissions as a result of the Federal Motor Vehicle Control Program and the decrease due to approved controls on stationary sources of hydrocarbons will be sufficient to meet the national standard by May 31, 1975, and to maintain the standard through 1980. Attainment of the carbon monoxide standards will not be achieved by these controls. Consequently, supplementary controls are required, and, since mobile sources will account for approximately 93 percent of the carbon monoxide emissions, additional controls on mobile sources are required.

State Transportation Control Plan

As noted previously, the State of Arizona submitted a transportation control plan on April 11, 1973.

Arizona's control strategy included provisions for mandatory annual inspection and maintenance on all light, medium, and heavy duty vehicles, the use of retrofit devices on pre-1976 vehicles, and the conversion of 10,000 vehicles to liquid petroleum gasoline.

The State plan concluded that these measures would achieve emission reductions sufficient to attain the standard. However, EPA analysis, presented in the EPA Evaluation Report, indicated that excessive emission reductions were claimed, and that, in fact, these measures were not sufficient to show attainment of the standard. Consequently, additional measures, which control vehicle usage and consequently total emissions from the vehicle population at large, were considered necessary. EPA calculated that the additional emission reduction necessary to show attainment of the standard could be achieved with a 32 percent reduction in total vehicle miles traveled (VMT).

The difference between EPA estimates and those of the State centered primarily around the applicability and effectiveness of the catalyst retrofit. EPA's analysis did not support the State's claim that 100 percent of the 1968–1974 autos could be readily retrofitted with the catalyst. Not all vehicles in this age class can operate on the unleaded fuel necessary for catalyst function. Considering this limiting factor, EPA estimated that only 20 percent of 1968–1970 vehicles and 75 percent of the 1971–1974 vehicles could be retrofitted with catalyst converters (See An EPA White Paper: The Clean Air Act and Transportation Controls).

For the most part, reductions attainable by the remaining control measures of the State plan were considered realistic and generally approvable.

The transportation control plan, however, lacked the necessary procedures for enforcement and administration. Specifically, the State does not have legal authority for its inspection/maintenance program; there are no regulations and administrative procedures for either inspection/maintenance or the retrofit program; and there is no monitoring and surveillance program. Similarly, the transportation control plan does not indicate that adequate resources have been allocated by the State for implementation of these measures.

On September 11, 1973, the Governor of the State of Arizona submitted a revised transportation control plan that included significant modifications to the earlier State plan.

The inspection/maintenance program was essentially reproposed: however, the revised plan contained a claim that the post-maintenance deterioration curve is more realistic than EPA's, and that, as a result, the program could achieve a 22 percent reduction in carbon monoxide emissions rather than the 12 percent allowed by EPA. EPA had assumed the deterioration to be linear as a function of time, while the State indicated that the emission-reducing effectiveness of maintenance would not begin to deteriorate until much later in the post-maintenance year, thus yielding higher overall emission reductions than would be assumed in a linear deterioration. Based on the analysis of data contained in the EPA Technical Support Document and data referenced by the Arizona Plan, EPA does not believe that the 22 percent reduction claimed by Arizona can be supported at this time.

The State's retrofit program was substantially modified. The use of oxidizing catalyst converters was restricted to 1973–1975 vehicles in accordance with EPA's information on the poor applicability of such devices to older vehicles. Application of the air bleed to the intake manifold device was reproposed for pre-1968 model years. Finally, the State proposed the application of a new air bleed/exhaust gas recirculation device on all 1968–1972 vehicles. The data do not support the applicability of this device on 1972 vehicles, and EPA cannot accept emission reductions attributed to that model year. The State is encouraged to evaluate possible retrofit alternatives.

In short, the revised State plan demonstrate better compatibility between retrofit devices and vehicles of each model year. Consequently, EPA can accept greater emission reductions for the State plan. However, as with the initial State plan, these measures are not sufficient to show attainment of the standard; the necessity for VMT reduction remains. Although the revised plan originally did not include any control measures for VMT reduction, the Governor acknowledged in his letter accompanying the plan that reasonable interim measures to reduce VMT must be adopted. Subsequent submittals on September 21 and October 2, 1973, indicated that the Governor's special task force is vigorously encouraging business and local government to develop carpool incentives; also being developed are parking restrictions, improvements in the public transit system, and traffic flow improvements.

EPA acknowledges that such measures are promising, and that the potential for substantial progress exists. Further, EPA recognizes the firm commitment on the part of State and local governments to fully develop and implement such control strategies. At this point, however, some of Arizona's interim strategies have not been formulated to the point at which EPA can evaluate their effectiveness in reducing VMT, and, ultimately, carbon monoxide emissions.

Finally, the revised State plan, like the earlier version, lacks the necessary procedures for enforcement and administration, and adequate resources for effective implementation. Until this is done, EPA is promulgating the regulations necessary to make the program submitted by the State effective. However, EPA is confident that the State will adopt whatever measures are necessary to carry out its program to a successful conclusion.

Proposed EPA Transportation Control Plan

In the Federal Register of July 16, 1973, the EPA proposed substitute regulations to show attainment of the carbon monoxide standard. Recognizing the effort and progress made by Arizona in its inspection/maintenance retrofit program, the Administrator incorporated these individual control measures into EPA's proposal as viable measures to reduce vehicle emissions, and proposed them in accordance with the schedule set forth in the State plan. However, as these control measures were not sufficient to show attainment of the standard, EPA proposed additional measures designed to achieve the 32 percent reduction in VMT, which EPA considered necessary to attain the standard. EPA's proposal measures included bus/carpool lanes on freeways and major streets, 20 percent reduction in off-street public parking, and limitations on the construction of additional parking facilities—all supplemented by the required availability of a computer-aided carpool- and buspool-matching system. The intent of these measures was to discourage individual use of private vehicles. EPA calculated that these measures

could increase the occupancy factor for work-oriented trips by 50 to 75 percent, and thereby reduce VMT by 10 to 15 percent by 1975.

To assure that this VMT reduction is achieved and to achieve an additional 10 to 15 percent reduction by 1977, EPA proposed to limit gasoline consumption (at the distributor level) to 1972–1973 levels, and to limit the motorcycle population to projected 1975 levels. The gasoline limitation was designed to retard the very rapid VMT growth expected after 1975; the restriction on motorcycle population was designed to prevent counter-productive shifts from automobiles to highly polluting motorcycles as a result of gasoline limitations and parking bans.

The measures proposed by EPA to control VMT were sufficient to demonstrate attainment of the standard. However, the inspection/maintenance and retrofit programs could not be implemented in time to meet the standards by 1975; therefore, a 2-year extension was necessary. To satisfy the remaining legal requirements for such an extension, the control strategy must consider reasonably available control measures for implementation as expeditiously as practicable. At the time the EPA plan was proposed, the VMT reduction measures previously discussed were considered to be reasonably available control measures and sufficient to satisfy the requirements for a 2-year extension.

Public Comment

The EPA hearings in Phoenix and Tucson elicited substantial public comment regarding the control measures proposed by EPA; also, the State of Arizona used the hearings as an opportunity to present its revised transportation control plan. The State also affirmed its commitment to develop and implement effective VMT reduction measures.

Comments were received from a wide range of sources—regional and municipal governments, industry, civic organizations, environmental groups, and individual citizens. Generally, EPA's proposal for the State's inspection/maintenance and retrofit programs received solid support. However, EPA's VMT control measures received generally adverse comment. Many stated that such proposals were unrealistic in view of the area's high degree of dependence on automobiles and lack of alternative modes of transportation.

The workability of the measure for exclusive bus/carpool lanes was doubted. The point was made that without an expanded bus system, exclusive bus lanes would serve no beneficial purpose and that almost no streets could support viable bus lanes. Additional comments were received criticizing the inadequacy and inconvenience of the existing transit systems in both Phoenix and Tucson. Although representatives of these cities spoke of improvements in scheduling and expansion of the service area, commitments for purchase of buses for increasing the existing transit capacity system during the commuting period have not been made. Testimony indicated that the Phoenix bus system is presently at capacity during the commuting period. Substantial comment was received encouraging and supporting carpooling for commuters as the best solution to reduce VMT and congestion, particularly in the absence of a viable transit system.

The required availability of a voluntary computer-aided bus/carpool matching system, which was included in the revised State plan, was generally accepted. Several on-going programs for assisting employees to locate and form carpools were noted.

The parking reduction measure was criticized as having potentially adverse effects on downtown business. Similarly, the parking review proposal was thought to have adverse economic effects. In particular, it was said that such a regulation might threaten the growth of the central business district and the proposed Sky Harbor Airport expansion. Comments received on parking review proposals in other regions stated that EPA should allow state and local organizations the option of developing a parking management supply plan capable of achieving results that were equivalent to the proposed source-by-source review.

Restrictions on the ownership of motorcycles were opposed. Spokesmen for the motorcycle industry requested that EPA establish emission standards for motorcycles. Comment was added that if EPA should set such standards, any problem of motorcycles emissions would be substantially diminished.

Any limitations on the amount of gasoline sold were opposed. The possible adverse impact on agricultural operations was cited. Further, the reduction or control would drastically affect the growth economy, and would not accommodate a continuation of the unprecedented growth that occurred over the last several years.

Environmental groups in both cities generally supported EPA's proposals, and often suggested additional measures such as bicycle paths, mass transit improvements, and land-use controls. One spokesman concluded his statement with words that generally reflect the tenor of the testimony: "Any regulation adopted must have the support of the public."

Considerable comments was received on the applicability of the EPA proposal to the entire Region. The point was made that it can not be shown that there are violations of the national standard in the many communities spread across the five-county region and that auto usage in these communities also could not be shown to contribute to the air pollution problems of Phoenix and Tucson. Therefore, transportation control measures should only apply to the Phoenix and Tucson Metropolitan Areas not the five-county region.

The fact that the amount of reduction for Tucson was based on Phoenix data because of the lack of air quality data for Tucson was of concern to a significant number of those testifying at the hearing in Tucson. Data derived from monitoring during the summer months of 1973 in Tucson and from use of atmospheric diffusion models was presented by the Pima County Air Pollution Control District. These data show that in 1977 the 8-hour carbon monoxide standard would be substantially exceeded. The value derived for the maximum 8-hour concentration in 1977 was 21 mg/m^3.

A transportation control plan also designed to attain the standard by 1977 was submitted by the Pima County Air Pollution Control District at EPA's hearing in Tucson.

This plan relied on the measures in the State plan (namely inspection/maintenance and retrofit) and included increasing the use of carpools, increasing bus service, implementing a computerized traffic control system, instigating a public education effort, and implementing a continuous air quality monitoring program.

Transportation Control Plan

The EPA promulgation is a combination of approval of the Arizona Plan, and promulgation of portions of the EPA proposal as modified by the revised State plan and by testimony received at the hearings. EPA is taking action to approve the plan proposed by the State, specifically, the inspection/maintenance, retrofit, employer incentive, and carpool matching programs; simultaneously, EPA is promulgating certain requirements to assure the effectiveness and implementation of the approved State plan. This combination of approval and promulgation constitutes a complete and viable transportation control plan that satisfies the requirements of the Clean Air Act.

Each specific control measure of both the State plan and the EPA promulgation are described in the following paragraphs.

State plan: Inspection/maintenance program. An inspection/maintenance program has been initiated by the State of Arizona and is being approved by EPA in this plan. This program will require owners of light-duty and medium-duty vehicles to have their vehicles inspected and any needed maintenance performed every year. According to the State plan, the program will commence on July 1, 1975. EPA is requiring several submissions during the development of the inspection program as follows: draft legislation to be submitted by February 1, 1974; legislative authority to be established by May 1, 1974; and regulations to be adopted by September 1, 1974. These dates are necessary to effect the commitment to obtain legislation during the 1974 session of the Arizona legislature.

State plan: Retrofit program. As with the inspection/maintenance program, this control measure has been initiated by the State of Arizona and is being approved by EPA. The State will require that all pre-1976 light-duty vehicles be retrofitted with an appropriate emission-reducing device (1) On pre-1968 vehicles, an air bleed to the intake manifold will be installed beginning on July 1, 1975.

This device increases the air/fuel mixture by metering additional amounts of air to the manifold; the result is a leaner fuel mixture and more complete combustion resulting in fewer emissions. (2) Commencing on July 1, 1975, vehicles in the 1968–71 model years will be controlled using an air/bleed exhaust gas recirculation device. The operation is similar to the air bleed device mentioned previously. (3) Finally, oxidizing catalyst converters are to be installed on 1973–1975 vehicles able to operate on 91 octane unleaded gasoline. Implementation of the oxidizing catalyst aspect of the retrofit strategy will begin June 1, 1976. As with the inspection program, EPA is requiring several submissions concurrent with the development of the retrofit program. In particular, EPA is requiring draft regulations for the retrofit devices by February 1, 1974, and adopted regulations by September 1, 1974.

State plan: Employer carpool incentive program. As part of the Arizona Plan, Arizona submitted details of a program to develop and implement an employer incentive program. EPA is approving this program and is setting certain program requirements. The employer carpool incentive program is a new regulation designed to encourage the use of carpools and mass transit and discourage employees from riding to work alone in their automobiles. The program requires an employer who maintains more than 200 employee parking spaces to provide an incentive program. Each employee carpool incentive program is to be submitted to the State by February 1, 1974. Approval or disapproval will be announced by EPA by June 1, 1974. On August 1, 1974, EPA will prescribe a plan for each employer in the above categories who does not submit an approvable plan. All plans will become effective on September 1, 1974. EPA envisions employer incentive plans to contain incentives such as preferential or covered parking for carpools, charges for use of parking spaces by single passenger automobiles, reductions in the number of parking spaces, subsidies to employees who use mass transit, and/or provision of special charter buses. EPA will evaluate each plan in terms of the effectiveness of the incentives in achieving an increase in the occupancy factor. EPA believes an occupancy factor of two is a reasonable goal.

The incentive program requirements will apply to employers in the highly traveled portions of Phoenix and Tucson.

State Plan: Bus/carpool matching program. EPA is also approving the implementation of a bus/carpool matching program. The purpose of the bus/carpool matching program is to assist commuters who desire to form carpools, or where there are sufficient commuters, to form buspools. Participation in the program would be voluntary. Each participant in the program would be provided with a listing of names and work phone numbers of all other participants who have similar origins and destinations and whose work hours most nearly match their own. The availability of the matching program is phased to include: a demonstration program to make the carpool matching service available to 10,000 employees in the State Capital area of Phoenix and to 2,000 employees in the central business district of Tucson. This phase is to be in operation by March 1, 1974; the program will be extended to include all employees in businesses having more than 200 employees in metropolitan Phoenix and Tucson by September 1, 1974; and, finally, the program will be made available to employees of smaller firms (50 or more employees) in both areas by September 1, 1975.

EPA promulgation: Management of Parking Supply. This regulation will require approval before construction begins for any new or modified parking facility with new capacity or an increase in capacity of 50 or more vehicles. An application requiring information pertinent to assessing the effect on local air quality and VMT in the Metropolitan Phoenix Area and the City of Tucson must be approved by EPA or by an EPA-approved agency. Provision is made for public comment prior to a final decision. As an alternative to instituting review of each parking facility, any local jurisdiction may submit a 5-year comprehensive parking management plan. To be approved, this plan will have to demonstrate that when carried out it will have an effect comparable to a review of each parking facility.

EPA Promulgation: Monitoring transportation trends. In addition to monitoring air quality, EPA will require transportation trend monitoring. This will be accomplished to assure the effectiveness of the inspection and maintenance program and the retrofit program. This regulation requires that the State monitor the actual per-vehicle emissions reduction achieved as a result of the plan. Monitoring of VMT, average vehicle speeds, and occupancy factor in the Metropolitan Phoenix Area and the City of Tucson is also required to evaluate the effectiveness of the employer carpool incentive program and traffic flow improvements. Reports are required quarterly starting with the period from July 1 to September 30, 1974.

Findings

The Clean Air Act requires that national ambient air quality standards be achieved as expeditiously as practicable. The EPA approved and promulgated measures are sufficient to attain the standards. However, attainment is not possible by 1975. The catalyst retrofit program cannot be implemented until 1976, with full emission reductions unattainable until 1977. Although both the remainder of the retrofit program and the inspection/maintenance program will be implemented in mid-1975, the full annual cycle necessary to achieve the projected emission reduction will not be completed by the end of 1975. Therefore, the standard cannot be achieved until 1977. Because all reasonable and available interim measures will be implemented, a 2-year extension is justified and necessary.

Measures not promulgated. There are four measures which EPA has previously proposed, but which are not included in this promulgation. First, the proposed restrictions on motorcycle registration met considerable opposition at the public hearings. Also motorcycle industry spokesmen presented testimony to the effect that emission standards are necessary and that EPA should set them. EPA currently anticipates that such standards will be established in time for the 1976 model year. In view of this, EPA has reevaluated this measure and has determined that it is not reasonable at this time.

Secondly, EPA's proposed measure requiring a reduction in the number of public parking spaces was not supported at the hearings. Testimony presented by city officials indicated that most public parking is associated with downtown areas. Because of this, the measure would affect those who work and shop in the downtown area and park in public parking. Since the air quality problem is associated with the urbanized portions of both cities and not just the downtown areas, this measure has been replaced by measures that affect parking in larger areas. These replacement measures are the employer incentive program, which affects the availability or attractiveness of employee parking, and the management of parking supply, which reviews the construction or modification of all parking.

Thirdly, EPA's proposal to establish exclusive bus/carpool lanes is not being promulgated because no segment of the street network could be identified as capable of supporting a viable bus or carpool lane.

Finally, the proposed limitations on gasoline consumption was opposed by many hearing witnesses. EPA intended that this admittedly harsh measure be implemented only after all other control measures proved ineffective. Its purpose was to compensate for shortcomings in the emission-reducing effectiveness of the other control measures. Because EPA is now approving Arizona's retrofit program, which achieves much higher emission reductions, the gasoline restriction measure is not needed to show attainment of the carbon monoxide standard and will not be promulgated.

Additional VMT reduction proposals that go beyond those of EPA were suggested in the hearings, such as bicycle paths, mass transit improvements, and land-use controls. EPA believes that all such measures are constructive and capable of achieving significant improvements in air quality.

Although, EPA selected those strategies that were capable of achieving large-scale emission reductions in a relatively short time, the Agency strongly encourages local government and interest groups to develop strategies to supplement the promulgated control programs.

Compilation of Control Strategy Effects

Table 1 shows a compilation of control strategy effects. As can be seen, the national standards for carbon monoxide are attained by 1977 and maintained through 1980.

Table 1

Control strategy effects in Phoenix-Tucson AQCR

Source and control measures	Emissions and reduction tons/day		
	1975	1977	1980
Mobile source emissions without proposed control measures	656.5	522.2	338.3
Expected reductions:			
Inspection/maintenance		−62.7	−40.6
Retrofit devices:			
Catalytic converter (1973–1975)		−58.1	−43.2
Exhaust gas recirculation (1968–1971)		−69.2	−28.7
Air bleed (pre-1968)		−70.8	−42.5
VMT reduction measures	−63.0	−25.2	
Motorcycles	14.0	16.8	18.6
Heavy-duty vehicles	69.6	82.3	98.6
Inspection/maintenance		−9.3	−11.4
Other (stationary, aircraft, etc)	25.7	28.7	31.5
Total emissions remaining	702.8	351.7	320.6
Allowable emissions for attainment of CO standards	351.7	351.7	351.7
Estimated second-high 8-hour CO concentration	[1] 20.0	[1] 10.0	[1] 9.1
National 8-hour CO standard	[1] 10	[1] 10	[1] 10

[1] Milligrams per cubic meters.

Basis for Reductions Claimed

As has been previously discussed, the transportation control plan submitted by the State of Arizona shows significantly more reduction for inspection/maintenance and retrofit than has been claimed in this promulgation. The difference is primarily due to the amount of reduction that can be achieved by a loaded inspection program. The average reduction percentage for this program is calculated by the Arizona DAPC to be 22.2 percent of the carbon monoxide emissions from light-duty vehicles. EPA has calculated the reduction to be 12 percent. The difference in the two values results from different estimations of the rate of deterioration between maintenance events. EPA evaluation of the data presented by Arizona to support its claim is that the data do not specifically relate to deterioration when mandatory inspection is required. Although the arguments of Arizona's automotive experts may have merit, EPA policy requires use of the estimated emission reductions contained in Appendix N of 40 CFR, Part 51, except when emissions reductions can be supported by adequate analysis and data. Therefore, reduction values for Appendix N have been used for estimating the effect of an inspection program.

The percentage reductions (50 percent) attributed to use of the catalytic and air bleed retrofit devices are based on information contained in Appendix N. The effectiveness of the exhaust gas recirculation retrofit (40 percent) for 1968–1971 light-duty vehicles was established from limited technical data computed both by EPA and by the manufacturer of one of the devices. Although the data base is small, it is supported by technical judgment.

It has been noted that implementation of the State-selected strategies of inspection/maintenance and retrofit devices by 1977 results in emissions in excess of the allowable emissions. The excess emissions can be negated by a reduction in VMT by light-duty vehicles of approximately 9.6 percent. The VMT reduction measures must therefore achieve this reduction. It is highly desirable to select VMT reduction measures that will be least disruptive to individual mobility and habits and most effective in reducing VMT.

The employee incentive regulations conform to this description for several reasons. First, work trips constitute the largest single class of trips within the Metropolitan Phoenix Area by a factor of more than two: approximately 40 percent of urban travel is work-oriented, 10–20 percent is shopping-oriented, and 11–22 percent is social-recreational. (See Transit and the Phoenix Metropolitan Area, Maricopa County Association of Governments, which is available at EPA Region IX, 100 California Street, San Francisco, California 94111.) Therefore, any strategy affecting work-related VMT would potentially have the greatest reduction. Second, work trips have a definite pattern defined by a specific origin and destination and occur at a specific time each weekday. Carpooling by work commuters with identical origins, destinations, and times is therefore possible without disrupting mobility patterns of individuals as severely as would disrupting shopping, social-recreational, or business trips. Another important aspect is the effectiveness of reducing the work trip VMT because of the significance of the timing of the work trip. This is due to the fact that the highest concentrations of carbon monoxide occur in the evening hours during the winter months when a surface inversion occurs just prior to the evening peak traffic (caused primarily by work VMT) and produces stable atmospheric conditions that promote accumulation of the resultant automobile pollutants.

Specific reduction values for control measures that have the effect of reducing VMT for the Phoenix or Tucson metropolitan areas are not known. It is possible, however, to estimate the percentage reduction in VMT of all urban trips resulting from an increase in work trip occupancy factor (number of persons per vehicle). Once the decrease in total VMT is known for various increases in work trip occupancy factors, the occupancy factor corresponding to the required VMT reduction can be evaluated for realistic attainment in terms of each selected control measure.

Using an estimated occupancy factor of 1.2 persons per vehicle and an estimate that 40 percent of urban travel is work-oriented (see above), the areawide VMT reductions can be achieved for increases in the work trip occupancy factor as noted in Table 2.

Table 2

New work trip occupancy factor	Increase in work trip occupancy factor, percent	Reduction in VMT of all urban trips, percent
1.4	16.7	5.7
1.5	25	8
1.6	33.3	10

As noted previously, a VMT reduction of 9.6 percent is required. This percentage reduction corresponds to a new work-trip-occupancy-factor of approximately 1.6, which is a 33.3 percent increase. In other words, about one out of every four cars would be removed from the work trip and consequently the occupants of one out of every four cars would be carpooling with the remaining three during the work-related trips.

The first phase of the employer carpool incentive program will affect approximately 30 percent of all employed persons (those in businesses with 200 employee parking spaces). Attainment of an occupancy factor of 2 for those employees will achieve an overall work trip occupancy factor of about 1.4, or, as shown above, a 5 percent reduction in VMT for all urban trips. The second phase of the employer carpool incentive program will extend to all employed persons in businesses with 70 employee parking spaces. The expected effect of the second phase is to raise the work trip occupancy factor to about 1.6 for 10 percent reduction in VMT for all urban trips. The 10 percent VMT reduction can be achieved by attaining an occupancy factor of 2 for 60 percent of all employed persons.

VMT reductions in a future year are calculated from a growth curve, rather than from current levels. The regulation for the review of new parking lots should contribute to VMT reduction by preventing the construction of the new parking lots that cause violations of air quality standards. These parking lots would have been a part of the VMT growth curve. This measure should provide a vehicle for maintaining the air quality standards once they have been achieved.

Economic and Social Impacts of Promulgated Control Strategy

In discussing the impacts of the transportation control plan, it is helpful to understand that the control measures fit into two categories: measures that place control at the source, such as inspection/maintenance and retrofits; and measures that control the total mileage traveled by the vehicle population at-large, such as carpooling and management of parking supply.

Impacts associated with the first class of control measures are primarily economic. The automobile owner will incur directly the cost of annual inspection (approximately $5) and post-inspection maintenance (between $1 and $31), which may be necessary on an annual basis. Such maintenance may result in greater fuel economy and savings. It

should also be noted that the program is self-supporting: the $5 inspection fee will cover the operating costs outlay for inspection equipment.

The automobile owner will also incur direct out-of-pocket expenses when he retrofits his vehicle. For the oxidizing catalyst (vehicle model years 1973–1975), this cost will be approximately $90 to $140; for air bleed/exhaust gas recirculation (1968–1971), approximately $35 to $45. In addition, there will likely be costs incurred for replacement, although the frequency of replacement cannot yet be determined.

The impacts associated with carpooling and management of parking supply are much more difficult to quantify. However, the following assumptions regarding carpooling are reasonable: commuters can realize substantial savings by sharing fuel and parking costs; and, for many families, carpooling may eliminate the need for a second automobile. Both the carpooling program and the parking management supply plan may stimulate more effective land use planning efforts.

On the larger scale, the primary impacts will be cleaner air, diminished health problems, and improvements in the quality of life. In a more immediate sense, these measures are significant in terms of the nation's present energy crisis. The automobile is extraordinarily wasteful of energy and resources, particularly if that automobile transports only one person. Four to five empty seats in each automobile that transports only one person represent an enormous amount of available transportation capacity, and more importantly, a vast unused national resource as well. The carpooling strategies in Arizona and around the country will utilize this available transportation capacity and tap this national resource.

Over 25 percent of the nations energy consumption is used for transportation, with 75 percent of this, or 20 percent of the total, used by automobiles and other motor vehicles. Seventy-five percent of the energy used by automobiles is wasted due to the inefficiency of the automobile engine. In addition, the remaining quarter of the energy is largely wasted in any functional sense, since most American cars are far too big and heavy for their usual job of moving one or two people about.

EFFECTIVE DATE

These regulations promulgated today become effective on December 31, 1973, except in the case of those regulations that impose requirements for specific action at earlier dates. In such cases, the Administrator has found that good cause exists for accelerating the effective date because of the need to take action as expeditiously as practicable in order to attain and maintain the national ambient air quality standards. The regulation for management of parking supply is effective immediately upon publication and, pursuant to court order and previously published notice, applies to actions taken after August 15, 1973.

(42 U.S.C. 1857c-5(c) and 1857g)

Dated: November 21, 1973.

RUSSELL E. TRAIN,
Administrator.

Subpart D of Chapter 1, 40 CFR Part 52 is amended as follows:

Subpart D—Arizona

1. Section 52.120 is amended by revising paragraph (c) to read as follows:

§ 52.120 Identification of plan.

* * * * *

(c) Supplemental information was submitted on:

(1) March 1, March 2, and May 30, 1972, by the Arizona State Board of Health.

(2) April 11, 1973, and May 10, 1973.

(3) September 11, 1973, by the Governor, and;

(4) September 21, 1973, and October 2, 1973.

2. Section 52.122 is amended by adding paragraph (d) to read as follows:

§ 52.122 Extensions.

* * * * *

(d) The Administrator hereby extends for 2 years the attainment date for the national standards for carbon monoxide in the Phoenix-Tucson Intrastate Air Quality Control Region.

3. Section 52.123 is revised to read as follows:

§ 52.123 Approval status.

(a) With the exceptions set forth in this subpart, the Administrator approved Arizona's plan for the attainment of the national standards.

(b) With regard to the transportation control strategies submitted by the State of Arizona, the Administrator approves the inspection program for light-duty and medium-duty vehicles; the program for retrofit of air bleed devices on pre-1968 light-duty vehicles, the retrofit of air bleed/exhaust gas recirculation devices on 1968 through 1971 light-duty vehicles, the retrofit of oxidizing catalytic converters on 1973 through 1975 light-duty vehicles, the gaseous fuel conversion program; the carpool matching program; and the employer carpool incentive programs with the exceptions set forth in § 52.130, § 52.132, § 52.135, and § 52.136.

§ 52.131 [Amended]

4. In § 52.131, the attainment date table is revised by replacing the date "May 31, 1975, d" for attainment of the standards for carbon monoxide in the Phoenix-Tucson Intrastate Air Quality Control Region with the Date "May 31, 1977"; and by revoking and reserving footnote "d".

§ 52.132 [Reserved]

5. Section 52.132 is revoked and reserved.

6. Subpart D is amended by adding § 52.132 to read as follows:

§ 52.132 Transportation control compliance schedule.

The requirements of 51.14 are not fully met with respect to transportation control measures.

(a) Definitions:

(1) "Inspection and maintenance program" means a program to reduce emissions from in-use vehicles through identifying vehicles that need emission control related maintenance and requiring that such maintenance be performed.

(2) "Light-duty vehicle" means a gasoline-powered motor vehicle rated at 6,000 lb GVW or less.

(3) "Medium-duty vehicle" means a gasoline-powered vehicle rated at more than 6,000 lb GVW and less than 10,000 lb GVW.

(4) "Air bleed control device" means a system or device (such as a modification to the engine's carburetor) that results in engine operation at an increased air-fuel ratio so as to achieve reduction in exhaust emissions of hydrocarbon and carbon monoxide from 1967 and earlier light-duty vehicles of at least 21 and 58 percent, respectively.

(5) "Air bleed/exhaust gas recirculation device" means a system or device (such as modification of the engine's carburetor or positive crankcase ventilation system) that results in engine operation at an increased air-fuel ratio so as to achieve reductions of hydrocarbons and carbon monoxide of 25 percent and 40 percent, respectively, from light-duty vehicles of model years 1968 through 1971.

(6) "Oxidizing catalyst" means a device installed in the exhaust system of the vehicle that utilizes a catalyst and, if necesary, an air pump to reduce emission of hydrocarbons and carbon monoxide by 50 percent from that vehicle.

(7) All other terms used in this paragraph that are defined in Appendix N to Part 51 of this chapter, are used herein with the meaning therein defined.

(b) This section is applicable in Maricop and Pima Counties in the Phoenix-Tucson Intrastate Region.

(c) To implement the approved control measures specified in Sections 5 and 7 of the plan submitted September 11, 1973, and to complete the requirements of §§ 51.11(b), 51.14 and 51.15 of this chapter, the State of Arizona must submit to the Administrator:

(1) No later than Februray 1, 1974, detailed compliance schedules showing the steps the State of Arizona will take to establish and enforce the inspection and maintenance program for light-duty and medium-duty vehicles; the program for retrofit of air bleed devices on pre-1968 light-duty vehicles, of air bleed/exhaust gas recirculation devices on 1968 through 1971 light-duty vehicles, and of oxidizing catalytic convertors on 1973 through 1975 light-duty vehicles; and the gaseous fuel conversion program. These schedules shall include:

(i) The text of proposed legislation and regulations for the inspection and maintenance program, the gaseous fuel conversion program, and the light-duty vehicle retrofit programs.

(ii) A signed statement from the governor or his designee identifying the sources and amounts of funds for the programs. If funds can not legally be obligated under existing statutory authority, the text of needed legislation shall be submitted.

(iii) The date by which the State will recommend all needed legislation to the State legislature.

(iv) The date by which necessary equipment for the inspection and maintenance and carpool matching program will be ordered.

(2) No later than May 1, 1974, the legislative authority for implementing the inspection and maintenance program and the gaseous fuel conversion program.

(3) No later than September 1, 1974, the adopted regulations and administrative policies necessary for implementation of the control measures cited in paragraph (c)(1) of this section.

(4) No later than January 1, 1974, a compliance schedule for the employee carpool incentive program outlined in section 8 of the State of Arizona Air Pollution Control Implementation Plan, Transportation Control Strategies. This compliance schedule shall conform to the requirements of § 52.137.

(5) No later than January 1, 1974, a compliance schedule for the carpool matching program. This compliance schedule shall conform to the requirements of § 52.138.

(d) The regulations adopted to implement the approved inspection and maintenance program referred to in paragraph (c)(1) of this section shall include as a minimum.

(1) Provisions for inspection of all such motor vehicles at periodic intervals at least once each year by means of an emission test having a loaded mode test cycle.

(2) Provisions for inspection failure criteria consistent with the failure of 50 percent of the vehicles tested during the first inspection cycle.

(3) Provisions to require that failed vehicles receive, within 30 days, the maintenance necessary to achieve compliance with the inspection standards. This shall include sanctions against noncomplying individual owners and repair facilities, retest of failed vehicles following maintenance, a certification program to ensure that repair facilities performing the required maintenance have the necessary equipment, parts, and knowledgeable operators to perform the tasks satisfactorily, and such other measures as may be necessary or appropriate.

(4) A program of enforcement, such as a spot check of idle adjustment, to ensure that, following maintenance, vehicles are not subsequently readjusted or modified in such a way as would cause them to no longer comply with the inspection standards. This program shall include appropriate penalties for violation.

(5) Designation of an agency or agencies responsible for conducting, overseeing, and enforcing the inspection and maintenance program.

(6) Requirements that the State, after July 1, 1975, shall not register or allow to operate on its highways any light-duty or medium-duty vehicle that does not comply with the applicable standards and procedures adopted pursuant to the approved inspection and maintenance program and to paragraph (d) of this section. This shall not apply to the initial registration of a new motor vehicle.

(7) Requirements that after July 1, 1976, no owner of a light-duty vehicle shall operate or allow the operation of any such vehicle that does not comply with the applicable standards and procedures adopted pursuant to the approved inspection and maintenance program and to paragraph (d) of this section. This shall not apply to the initial registration of a new motor vehicle.

(8) The State may exempt any class or category of vehicles that the State finds are rarely used on public streets and highways (such as classic or antique vehicles).

(e) The regulations adopted to implement the approved retrofit programs referred to in paragraph (c)(1) of this section shall include as a minimum:

(1) Requirements that on or before May 3, 1977, all gasoline-powered fleet vehicles, and all private light-duty vehicles of 1973 through 1975 model years subject to registration in Maricopa and Pima Counties, shall be equipped with an appropriate oxidizing catalyst control device.

(2) Requirements that on or before August 1, 1976, all gasoline-powered, light-duty vehicles of model year 1968 to 1971 subject under presently existing legal requirements to registration in Maricopa and Pima Counties, shall be equipped with an air bleed/exhaust gas recirculation control device.

(3) Requirements that on or before August 1, 1976, all gasoline-powered, light-duty vehicles of model years prior to 1968 subject to registration in Maricopa and Pima Counties, shall be equipped with an appropriate air bleed device. The State may exempt any class or category of vehicles that the State finds are rarely used on public streets and highways (such as classic or antique vehicles) or for which the State demonstrates to the Administrator that air bleed retrofit devices are not commercially available.

7. Subpart D is amended by revising § 52.136 to read as follows:

§ 52.136 Control strategy: Carbon monoxide.

(a) The requirements of § 51.14 of this chapter are not met because the plan does not contain sufficient measures to provide for attainment and maintenance of the national standards for carbon monoxide in the Phoenix-Tucson Intrastate Region as expeditiously as practicable.

(b) The requirements of § 51.14 (a) and (b) of this chapter are not met because the plan does not provide a description of enforcement methods, administrative policies, and proposed rules and regulations pertaining to the selected transportation control measures.

(c)(1) The State-submitted inspection and maintenance program is disapproved to the extent it provides for inspection and maintenance of vehicles of over 10,000 lb GVW.

(2) The State-submitted air bleed/EGR retrofit program is disapproved to the extent it provides for the retrofitting of such devices on 1977 model vehicles.

8. Subpart D is amended by adding §§ 52.137, 52.138, 52.139, and 52.140 as follows:

§ 52.137 Employer carpool incentive program.

(a) Definitions:

(1) "Metropolitan Phoenix Area" means the area bounded on the south by I–17 and Buckeye Road to the intersection with I–17, on the east by 48th Street, on the north by the Arizona Canal and Glendale Avenue, and on the west by 43rd Avenue.

(2) "Greater Tucson Area" means an area bounded by a line starting at the intersection of Sweetwater Drive and Silverbell Road, thence 6 miles east, thence 1.5 miles south, thence 5.5 miles east, thence 7.5 miles south, thence 4.5 miles west, thence 3 miles south, thence 5 miles west, thence 5 miles north, thence 2 miles west, thence 7 miles north to the point of origin.

(b) This section is applicable within the Metropolitan Phoenix and Greater Tulson areas in the Phoenix-Tucson Intrastate Air Quality Control Region.

(c) On or before January 1, 1974, the State of Arizona shall submit to the Administrator a compliance schedule implementing the approved employer carpool incentive program. This compliance schedule shall, at a minimum, provide that each employer in areas specified in paragraph (b) of this section who maintains more than 200 employee parking spaces shall, on or before February 1, 1974, submit to the State of Arizona an adequate incentive program designed to encourage the use of carpools and mass transit and discourage employees from using single-passenger automobiles to commute to work. Each program shall contain provisions for preferential parking, covered parking, and other benefits to employees who travel to work by carpool; subsidies to employees who use mass transit; reductions in the number of employee parking spaces or surcharges on the use of such spaces by employees; provision of special charter buses or other modes of mass transit for the use of employees; and/or any other measures acceptable to the Administrator. By April 1, 1974, the State of Arizona shall submit each program so received, together with the State's evaluation of the program and the State's recommendation as to whether that program should be approved or disapproved, to the Administrator.

(d) On or before June 1, 1974, the Administrator shall approve or disapprove each program so submitted. Notice of such approval or disapproval shall be published in this Part 52.

(e) In order to be approvable by the Administrator, each program shall contain procedures whereby the employer will supply the State of Arizona and the Administrator with semiannual certified reports that shall show, at a minimum the following information:

(1) The number of employees at each of the employer's facilities within the areas specified in paragraph (b) of this section on October 15, 1975, and as of the date of the report.

(2) The number of (i) free and (ii) non-free employee parking spaces provided by the employer at each such employment facility on October 15, 1973, and as of the date of the report.

(3) The number of employees regularly commuting to and from work by (i) private automobile, (ii) carpool, and (iii) mass transit at each such employment facility on January 1, 1974, and as of the date of the report.

(4) Such other information as the Administrator may prescribe.

(f) If, after the Administrator has approved a carpool incentive program, the employer fails to submit any reports in full compliance with paragraph (e) of this section, or if the Administrator finds that any such report has been intentionally falsified, or if the Administrator determines that the program is not in operation or is not providing adequate incentives for employee use of carpools and mass transit, the Administrator may revoke the approval of such plan. Such revocation shall constitute a disapproval.

(g) By July 1, 1974, the Administrator shall prescribe a carpool incentive program for each employer to whom paragraph (b) of this section is applicable if such employer has not submitted a program. By August 1, 1974, the Administrator shall prescribe a carpool incentive program for each employer to whom paragraph (b) of this section is applicable if the program submitted is not adequate. Within 2 months after any revocation pursuant to paragraph (f) of this section, the Administrator shall prescribe a carpool incentive program for the affected employer. Any program prescribed by the Administrator shall be published in this Part 52.

(h) All programs approved under paragraph (d) or promulgated under paragraph (g) on account of an initial failure to submit a plan shall be fully implemented on or before September 1, 1974.

(i) Each employer in the Region who maintains more than 70 employee parking spaces shall, on or before April 1, 1975, submit to the Administrator an adequate annual incentive program conforming to the requirements of paragraphs (b) and (e) of this section, except that in paragraph (e) of this section the reference date for reports shall be October 15, 1974, rather than January 1, 1974. Each such program shall be subject to approval or disapproval by the Administrator by June 1, 1975. Each such program, when approved, shall be subject to revocation as provided in paragraph (f) of this section.

(j) By June 1, 1975, the Administrator shall prescribe a carpool incentive program for each employer to which paragraph (i) of this section is applicable if such employer has not submitted a program. By August 1, 1975, the Administrator shall prescribe a carpool incentive program for each employer to which paragraph (i) of this section is applicable if the program submitted is not adequate. Within 2 months after any revocation of any program of any employer pursuant to paragraph (f) of this section, the Administrator shall prescribe a carpool incentive program for the affected employer. Any program prescribed by the Administrator shall be published in this Part 52. All such programs shall be fully implemented on or before September 1, 1975.

§ 52.138 Bus/carpool matching program.

(a) Definitions:

(1) "Metropolitan Phoenix Area" means the area bounded on the south by I–17 and Buckeye Road to the intersection with I–17, on the east by 48th Street, on the north by the Arizona Canal and Glendale Avenue, and on the west by 43rd Avenue.

(2) "Greater Tucson Area" means an area bounded by a line starting at the intersection of Sweetwater Drive and Silverbell Road, thence 6 miles east, thence 1.5 miles south, thence 5.5 miles east, thence 7.5 miles south, thence 4.5 miles west, thence 3 miles south, thence 5 miles west, thence 5 miles north, thence 2 miles west, thence 7 miles north to the point or origin.

(b) This section is applicable within the Metropolitan Phoenix Area and Greater Tucson Area in Phoenix-Tucson Intrastate Air Quality Control Region.

(c) On or before January 1, 1974, the State of Arizona shall submit to the Administrator a compliance schedule for implementing the approved bus/carpool matching program. This compliance schedule shall, at a minimum, provide for implementation of the program in the following phases:

(1) On or before March 1, 1974, bus/carpool matching shall be made available to the following employees:

(i) *Phoenix state capital area.* At least 10,000 employes whose work location is within the area bounded by VanBuren Street on the north, Jefferson Street on the south, Central Avenue on the east, and 19th Avenue on the west.

(ii) *Tucson central business district.* At least 2,000 employees whose work location is within an area bounded by a circle of 2-mile radius centered at the intersection of Congress Street and Stone Avenue.

(2) On or before September 1, 1974, bus/carpool matching shall be made available to the following employees:

(i) *Metropolitan Phoenix Area.* All employees in businesses having more than 250 employees.

(ii) *Greater Tucson Area.* All employees in businesses having more than 100 employees.

(3) On or before September 1, 1975, bus/carpool matching shall be made available to the following employees:

(i) *Metropolitan Phoenix Area.* All employees in businesses having more than 50 employees.

(ii) *Greater Tucson Area.* All employees in businesses having more than 50 employees.

(d) The compliance schedule shall also include the following:

(1) A method of collecting information that shall include the following as a minimum:

(i) Provisions that each affected employee receive an application form with a cover letter describing the matching program.

(ii) Provisions on each application form for applicant identification of time, origin, and destination.

(iii) Provisions for each applicant to receive a list of names and work phone numbers of all other applicants who have similar origins and destinations and whose work hours most nearly match theirs.

(2) A manual or computer method of matching information that will have provisions for locating each applicant's origin and destination within a grid system in the urban area and the semirural region surrounding the Metropolitan Phoenix Area and the Greater Tucson Area and matching applicants with identical origin and destination grids and compatible work schedules.

(3) A method for providing continuing service such that the master list of all applicants is retained and available for use by new applicants, applications are currently available, and the master list is periodically updated to remove applicants who have moved from the area.

(4) An agency or agencies responsible for operating, overseeing, and maintaining the bus/carpool matching program.

§ 52.139 Management of parking supply.

(a) Definitions:

(1) "Parking facility" (also called "facility") means a lot, garage, building, or structure, or combination or portion thereof, in or on which motor vehicles are temporarily parked.

(2) "Vehicle trip" means a single movement by a motor vehicle that originates or terminates at a parking facility.

(3) "Construction" means fabrication, erection, or installation of a parking facility, or any conversion of land, buildings, or structures, or portions thereof, for use as a facility.

(4) "Modification" means any change to a parking facility that increases or may increase the motor vehicle capacity of, or the motor vehicle activity associated with, such parking facility.

(5) "Commence" means to undertake a continuous program of on-site construction or modification.

(b) This regulation is applicable to the following cities within the Phoenix-Tucson Intrastate Air Quality Control

Region: Phoenix, Tucson, Scottsdale, Tempe, Mesa, and Glendale.

(c) The requirements of this section are applicable to the following parking facilities in the areas specified in paragraph (b) of this section, the construction or modification of which began after August 15, 1973:

(1) Any new parking facility with parking capacity of 50 or more motor vehicles;

(2) Any parking facility that will be modified to increase parking capacity by 50 or more motor vehicles; and

(3) Any parking facility constructed or modified in increments which individually are not subject to review under this section, but which, when all such increments occurring since August 15, 1973, are added together, would as a total subject the facility to review under this section.

(d) No person shall commence construction or modification of any facility subject to this section without first obtaining written approval from the Administrator or an agency designated by him; provided, that this paragraph shall not apply to any construction or modification for which a general construction contract was finally executed by all appropriate parties on or before August 15, 1973.

(e) No approval to construct or modify a facility shall be granted unless the applicant shows to the satisfaction of the Administrator or agency approved by him that:

(1) The design or operation of the facility will not cause a violation of the control strategy that is part of the applicable implementation plan, and will be consistent with the plan's VMT reduction goals.

(2) The emissions resulting from the design or operation of the facility will not prevent or interfere with the attainment or maintenance of any national ambient air quality standard at any time within 10 years from the date of application.

(f) All applications for approval under this section shall include the following information:

(1) Name and address of the applicant.

(2) Location and description of the parking facility.

(3) A proposed construction schedule.

(4) The normal hours of operation of the facility and the enterprises and activities that it serves.

(5) The total motor vehicle capacity before and after the construction or modification of the facility.

(g) The Administrator may require an application for the construction or modification of between 50 and 249 spaces to include the information required by paragraphs (h)(1) through (7) of this section.

(h) All applications under this section for new parking facilities with parking capacity for 250 or more vehicles, or for any modification which, either individually or together with other modifications since August 15, 1973, will increase capacity by that amount, shall, in addition to that information required by paragraph (f) of this section, include the following information unless the applicant has received a waiver from the provisions of this paragraph from the Administrator or agency approved by the Administrator:

(1) The number of people using or engaging in any enterprises or activities that the facility will serve on a daily basis and a peak hour basis.

(2) A projection of the geographic areas in the community from which people and motor vehicles will be drawn to the facility. Such projection shall include data concerning the availability of mass transit from such areas.

(3) An estimate of the average and peak hour vehicle trip generation rates, before and after construction or modification of the facility.

(4) An estimate of the effect of the facility on traffic pattern and flow.

(5) An estimate of the effect of the facility on total VMT for the air quality control region.

(6) An analysis of the effect of the facility on site and regional air quality, including a showing that the facility will be compatible with the applicable implementation plan, and that the facility will not cause any national air quality standard to be exceeded within 10 years from date of application. The Administrator may prescribe a standardized screening technique to be used in analyzing the effect of the facility or ambient air quality.

(7) Additional information, plans, specifications, or documents required by the Administrator.

(i) Each application shall be signed by the owner or operator of the facility, whose signature shall constitute an agreement that the facility shall be operated in accordance with the design submitted in the application and with aplicable rules, regulations, and permit conditions.

(j) Within 30 days after receipt of an application, the Administrator or agency approved by him shall notify the public, by prominent advertisement in the Region affected, of the receipt of the application and the proposed action on it (whether approval, conditional approval, or denial), and shall invite public comment.

(1) The application, all submitted information, and the terms of the proposed action shall be made available to the public in a readily accessible place within the affected air quality region.

(2) Public comment submitted within 30 days of the date such information is made available shall be considered in making the final decision on the application.

(3) The Administrator or agency approved by him shall take final action (approval, conditional approval, or denial) on an application within 30 days after close of the public comment period.

(k) As an alternative to satisfying the requirements of paragraphs (d) through (j) of this section, any local jurisdiction or authority may submit to the Administrator a comprehensive parking management plan covering, at a minimum, the next 5 years. The plan must be submitted on or before April 1, 1974. By June 1, 1974, the Administrator shall approve such plans if he finds that:

(1) The agency submitting the plan has full and adequate legal authority to enforce compliance with its requirements.

(2) The area over which the agency exercises the authority described in paragraph (k)(1) of this section is a logical unit for air pollution control planning purposes.

(3) The plan sets forth a complete description of where additional construction of parking facilities will be allowed under the plan, and where parking spaces will be eliminated. The plan shall include any procedures for adjustments or variances to existing zoning or building codes that require parking spaces for new facilities that are inconsistent with the plan. The plan must state in detail the reasons for expecting any anticipated reduction in parking spaces, and must provide that no parking facility may legally be constructed in the area subject to the plan unless such construction is specifically authorized by the plan.

(4) The plan demonstrates that if its terms are carried out, air quality will improve at least as much as if all new parking facilities were subject to the requirements of paragraph (d) through (j) of this section. If any increase in VMT would result under the proposed plan over and above the VMT figure that would result if the review system outlined in paragraphs (d) through (j) of this section were followed, the plan shall show by clear and convincing evidence that any resulting impact on air quality will be insubstantial.

(5) The plan has been adopted after a public hearing held in the conformity with the requirements of § 51.4 of this chapter.

(l) In any area covered by a parking management plan approved under paragraph (k) of this section, no action to expand the number of spaces at parking facilities may be taken that is not explicitly provided for in the plan without a permit issued in accordance with the requirements of paragraphs (d) through (j) of this section.

§ 52.140 Monitoring transportation trends.

(a) This section is applicable to the State of Arizona.

(b) In order to assure the effectiveness of the inspection and maintenance program and the retrofit devices required under the Arizona implementation plan, the State shall monitor the actual per-vehicle emissions reductions occurring as a result of such measures. All data obtained from such monitoring shall be included in the quarterly report submitted to the Administrator by the State in accordance with § 51.7 of this chapter.

The first quarterly report shall cover the period January 1 to March 31, 1976.

(c) In order to assure the effective implementation of §§ 52.137, 52.138, and 52.139, the State shall monitor vehicle miles traveled and average vehicle speeds for each area in which such sections are in effect and during such time periods as may be appropriate to evaluate the effectiveness of such a program. All data obtained from such monitoring shall be included in the quarterly report submitted to the Administrator by the State of Arizona in accordance with § 51.7 of this chapter. The first quarterly report shall cover the period from July 1 to September 30, 1974. The vehicle miles traveled and vehicle speed data shall be collected on a monthly basis and submitted in a format similar to Table 1.

TABLE 1

Time period
Affected area

Roadway type	VMT or Average Vehicle Speed	
	Vehicle type (1)	Vehicle type (2) [1]
Freeway		
Arterial		
Collector		
Local		

[1] Continue with other vehicle types as appropriate.

(d) No later than March 1, 1974, the State shall submit to the Administrator a compliance schedule to implement this section. The program description shall include the following:

(1) The agency or agencies responsible for conducting, overseeing, and maintaining the monitoring program.

(2) The administrative procedures to be used.

(3) A description of the methods to be used to collect the emission data, VMT data, and vehicle speed data; a description of the geographical area to which the data apply; identification of the location at which the data will be collected; and the time periods during which the data will be collected.

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